

SEQUENCE LISTING

<110> Barton, Barry

McNaughton, Heather Jane

Schofield, Christopher Joseph

Thirkettle, Jan Edward

<120> Process for Preparing Clavam Derivatives

by Using Polypeptides Having Beta-Lactam Synthetase Activity

<130> P32085

<140> PCT/GB99/02301

<141> 1999-07-15

<150> GB 9815666.4

<151> 1998-07-17

<160> 6

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 1542

<212> DNA

<213> Streptomyces clavuligerus

<400> 1

atggggggac	cggttcttcc	ggetgccttc	gggttctctg	cctccgccc	aacggggcggg	50
ggccggggcc	ccggcccggg	cttcgcgacc	cggggcagcc	acaccgacat	cgacacgccc	120
caggggggagc	gctcgcctgc	ggcgaccctg	gtgcacgccc	cctcggctgc	gcccgcgcgc	180
gcggtgggcgc	gctccctcac	cggcgcgccc	accaccgcgg	tgctcgcggg	tgagatctac	240
aaccgggaag	aactcctctc	cgtgctgccc	gccggaccgc	cgccggaggg	ggacgcggag	300
ctggctctgc	ggctgctgga	acgctatgac	ctgcatgcct	tccggctggg	gaacgggggc	360
ttcgcgaccg	tggtgcggac	cggggaccgg	gtcctgctcg	ccaccgacca	cgccggttcg	420
gtgcgcctgt	acacctgtgt	ggcgccgggc	gaggtccggg	cgccaccgga	ggccaaggcg	480
ctcgcgcgcgc	accgcgaccc	gaagggcttc	ccgctcgcgg	acgcccgcgc	ggcgcgcggg	540
ctgaccggtg	tctaccaggt	gcccgcgggc	gccgtgatgg	acatcgacct	cggtcggggc	600
accgcgctca	cccaccgcac	ctggaccccg	ggcctctccc	gcccgcacct	gcccggagggc	660
gagggcgtcg	cggcgcgtgc	ggcgcgcctg	gagaaggcgc	tgcgccagcg	ggtcaccccc	720
ggcgacaccc	cggttggtgg	gctctccggc	ggaatcgact	cctccggggg	cgccggcctgt	780

gcgcaccggg	cgcccgggga	actggacacg	gtgtccatgg	gcaccgacac	gtccaacgag	840
ttccgcgagg	cccgggcggt	cgtcgaccat	ctgcgcaccc	ggcaccggga	gatcaccatc	900
ccgaccaccg	agctgctggc	gcagctcccc	tacgcggtgt	gggcctccga	gtcgggtggac	960
ccggacatca	tcgagtacct	gtccccctg	acagcgtctt	accgggcgct	cgacggggccg	1020
gagcgccgca	tcttcaccgg	gtacggcgcg	gacatccccc	tccgggggcat	gcaccgcgag	1080
gaccggctgc	ccgcgctgga	caccgttctc	gcgcacgaca	tggccacctt	cgacgggctg	1140
aacgagatgt	ccccgggtgct	gtccacgctg	gcggggcact	ggaccaccca	cccgtaactgg	1200
gaccgggagg	tcttcgatct	gctgggtctc	ctggaggccg	ggctcaagcg	gcggcacggc	1260
cgggacaagt	gggtgctgcg	cgccgcgatg	gccgacgcc	tcccggcgga	gaccgtcaac	1320
cggcccaagc	tgggcgtcca	cgagggtctg	ggcaccacgt	cctcgttctc	ccggtctctg	1380
ctggaccacg	gtgtcgccga	ggaccgcgtc	cacgaggcga	agcggcaggt	ggtgcgcgag	1440
ctgttcgata	tcacggctcg	gggcggacgg	caccctccg	aggtggacac	cgacgatgtg	1500
gtgcgctccg	tggccgaccg	gaccgcgcgg	ggggcggcct	ag		1542

<210> 2

<211> 512

<212> PRT

<213> Streptomyces clavuligerus

<400> 2

Gly	Ala	Pro	Val	Leu	Pro	Ala	Ala	Phe	Gly	Phe	Leu	Ala	Ser	Ala	Arg
1				5					10					15	
Thr	Gly	Gly	Gly	Arg	Ala	Pro	Gly	Pro	Val	Phe	Ala	Thr	Arg	Gly	Ser
				20					25					30	
His	Thr	Asp	Ile	Asp	Thr	Pro	Gln	Gly	Glu	Arg	Ser	Leu	Ala	Ala	Thr
				35					40					45	
Leu	Val	His	Ala	Pro	Ser	Val	Ala	Pro	Asp	Arg	Ala	Val	Ala	Arg	Ser
				50					55					60	
Leu	Thr	Gly	Ala	Pro	Thr	Thr	Ala	Val	Leu	Ala	Gly	Glu	Ile	Tyr	Asn
65									70					75	80
Arg	Asp	Glu	Leu	Leu	Ser	Val	Leu	Pro	Ala	Gly	Pro	Ala	Pro	Glu	Gly
									85					90	95
Asp	Ala	Glu	Leu	Val	Leu	Arg	Leu	Leu	Glu	Arg	Tyr	Asp	Leu	His	Ala
									100					105	110
Phe	Arg	Leu	Val	Asn	Gly	Arg	Phe	Ala	Thr	Val	Val	Arg	Thr	Gly	Asp
									115					120	125
Arg	Val	Leu	Leu	Ala	Thr	Asp	His	Ala	Gly	Ser	Val	Pro	Leu	Tyr	Thr
									130					135	140
Cys	Val	Ala	Pro	Gly	Glu	Val	Arg	Ala	Ser	Thr	Glu	Ala	Lys	Ala	Leu
145									150					155	160
Ala	Ala	His	Arg	Asp	Pro	Lys	Gly	Phe	Pro	Leu	Ala	Asp	Ala	Arg	Arg
									165					170	175
Val	Ala	Gly	Leu	Thr	Gly	Val	Tyr	Gln	Val	Pro	Ala	Gly	Ala	Val	Met

180	195	190
Asp Ile Asp Leu Gly Ser Gly Thr Ala Val Thr His Arg Thr Trp Thr		
195	200	205
Pro Gly Leu Ser Arg Arg Ile Leu Pro Glu Gly Glu Ala Val Ala Ala		
210	215	220
Val Arg Ala Ala Leu Glu Lys Ala Val Ala Gln Arg Val Thr Pro Gly		
225	230	235
Asp Thr Pro Leu Val Val Leu Ser Gly Gly Ile Asp Ser Ser Gly Val		
245	250	255
Ala Ala Cys Ala His Arg Ala Ala Gly Glu Leu Asp Thr Val Ser Met		
260	265	270
Gly Thr Asp Thr Ser Asn Glu Phe Arg Glu Ala Arg Ala Val Val Asp		
275	280	285
His Leu Arg Thr Arg His Arg Glu Ile Thr Ile Pro Thr Thr Glu Leu		
290	295	300
Leu Ala Gln Leu Pro Tyr Ala Val Trp Ala Ser Glu Ser Val Asp Pro		
305	310	315
Asp Ile Ile Glu Tyr Leu Leu Pro Leu Thr Ala Leu Tyr Arg Ala Leu		
325	330	335
Asp Gly Pro Glu Arg Arg Ile Leu Thr Gly Tyr Gly Ala Asp Ile Pro		
340	345	350
Leu Gly Gly Met His Arg Glu Asp Arg Leu Pro Ala Leu Asp Thr Val		
355	360	365
Leu Ala His Asp Met Ala Thr Phe Asp Gly Leu Asn Glu Met Ser Pro		
370	375	380
Val Leu Ser Thr Leu Ala Gly His Trp Thr Thr His Pro Tyr Trp Asp		
385	390	395
Arg Glu Val Leu Asp Leu Leu Val Ser Leu Glu Ala Gly Leu Lys Arg		
405	410	415
Arg His Gly Arg Asp Lys Trp Val Leu Arg Ala Ala Met Ala Asp Ala		
420	425	430
Leu Pro Ala Glu Thr Val Asn Arg Pro Lys Leu Gly Val His Glu Gly		
435	440	445
Ser Gly Thr Thr Ser Ser Phe Ser Arg Leu Leu Leu Asp His Gly Val		
450	455	460
Ala Glu Asp Arg Val His Glu Ala Lys Arg Gln Val Val Arg Glu Leu		
465	470	475
Phe Asp Leu Thr Val Gly Gly Gly Arg His Pro Ser Glu Val Asp Thr		
485	490	495
Asp Asp Val Val Arg Ser Val Ala Asp Arg Thr Ala Arg Gly Ala Ala		
500	505	510

<211> 29  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR primer

<400> 3  
ggaatcccat atgggggcac cgtttcttc 29

<210> 4  
<211> 26  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> PCR primer

<400> 4  
cgcggtatcc taggcgcgcc ccgcgc 26

<210> 5  
<211> 16  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> PCR primer

<400> 5  
Val Gly Gly Gly Arg His Pro Ser Glu Val Asp Thr Asp Asp Val Cys  
1 5 10 15

<210> 6  
<211> 20  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> PCR primer

<400> 6  
Gly Ala Pro Val Leu Pro Ala Ala Phe Gly Phe Leu Ala Ser Ala Arg

1  
Thr Gly Gly Gly  
20

5

10

15

12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96  
97  
98  
99  
100